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Generating polarity

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Two studies, published online this week, demonstrate the importance of Cdc42, a Rho-type GTPase, in cell polarization. In the January 30 *Scienceexpress* Wedlich-Soldner *et al.* describe experiments using a fusion protein of green fluorescent protein (GFP) linked to a constitutively activated form of Cdc42 in yeast cells (*Scienceexpress* 30 January 2003, doi:10.1126/science.1080944). They found that F-actin and actinomyosin-directed vesicle transport were essential for the establishment and maintenance of the Cdc42-induced polar cap in growth-arrested cells. In an Advanced Online Publication in *Nature* Etienne-Manneville and Hall describe how Cdc42 participates in cell polarity in mammalian cells (*Nature*, 29 January 2003, doi:10.1038/nature01423). They used a scratch-induced cell migration assay with primary rat astrocytes to show that Cdc42 regulates the phosphorylation of glycogen synthase kinase-3 β (GSK-3 β) at the leading edge of migrating cells. This leads to the interaction of the adenomatous polyposis coli (APC) protein with the 'plus' ends of microtubules, which is essential for cell polarization. Thus, experiments in completely different systems have demonstrated a key role for Cdc42 in regulating the actin cytoskeleton and cell polarity.

References

1. Rho GTPases in cell biology.
2. *Scienceexpress*, [<http://www.sciencexpress.org>]
3. *Nature*, [<http://www.nature.com>]